

## ABSTRACT

A synthetic aperture side looking sonar system which includes an array of active elements, which provide output signals in response to acoustic reflections received from a target area, during travel over the target area. The array has a first section of elements, the output signals of which are used to obtain target information. The array additionally has a second section, including space apart transducers, the output signals of which are used exclusively to determine yaw and sway of the system, as it travels over the target area. Signal processing circuitry, using displaced phase center principles, is provided, and is responsive to the element output signals to derive yaw and sway correction signals for synthetic aperture beam formation.